

Claims

1. A method for enhancing arteriogenesis and/or the growth of collateral arteries and/or other arteries from preexisting arteriolar connections comprising contacting organs, tissue or cells with transforming growth factor beta 1 (TGF β 1) and/or a nucleic acid molecule encoding said TGF β 1.
2. Use of transforming growth factor beta 1 (TGF β 1) and/or a nucleic acid molecule encoding said TGF β 1 for the preparation of a pharmaceutical composition for enhancing arteriogenesis and/or collateral growth of collateral arteries and/or other arteries from preexisting arteriolar connections.
3. The method of claim 1 or the use of claim 2, wherein the TGF β 1 is a recombinant TGF β 1.
4. The method of claims 1 or 3, further comprising contacting the organ, tissue or cell with a growth factor or cytokine.
5. The use of claims 2 or 3, wherein the pharmaceutical composition is designed to be administered in conjugation with a growth factor or cytokine.
6. The method of claim 4 or the use of claim 5, wherein said growth factor or cytokine is b-FGF, PDGF, TNF- α , IL-1, IL-6 or VEGF.
7. The method of any one of claims 1, 3, 4 or 6, comprising
- (a) obtaining cells, tissue or an organ from a subject;
 - (b) introducing into said cells, tissue or organ a nucleic acid molecule encoding and capable of expressing TGF β 1 in vivo; and
 - (c) reintroducing the cells, tissue or organ obtained in step (b) into the same subject or a different subject.

8. The method of any one of claims 1, 3, 4, 6 or 7 or the use of any one of claims 2, 3, 5 or 6, wherein the TGF β 1 is a derivative or functional equivalent substance.

9. The method or use of claim 8, wherein said derivative or functional equivalent substance is an antibody, (poly)peptide, nucleic acid, small organic compound, ligand, hormone, PNA or peptidomimetic.

10. The method of any one of claims 1, 3, 4, 6 to 9 or the use of any one of claims 2, 3, 5, 6, 8 or 9, wherein said method or said pharmaceutical composition is designed to be applied to a subject suffering from a vascular disease or a cardiac infarct or a stroke.

11. The method or the use of claim 10, wherein said vascular disease is arteriosclerosis and/or a hyperlipidemic condition, a coronary artery disease, cerebral occlusive disease, peripheral occlusive disease, visceral occlusive disease, renal artery disease, mesenterial arterial insufficiency or an ophtamic or retinal occlusion.

12. The method of any one of claims 1, 3, 4, 6 to 11 or the use of any one of claims 2, 3, 5, 6, 8 to 11, wherein said method or said pharmaceutical composition is designed to be applied to a subject during or after exposure to an agent or radiation or surgical treatment which damage or destroy arteries.

13. A method for the treatment of tumors comprising contacting organs, tissue or cells with an agent which suppresses arteriogenesis and/or the growth of collateral arteries and/or other arteries from preexisting arteriolar connections through inhibition of the biological activity of TGF β 1 as defined in any one of claims 1 to 12.

14. Use of an agent which suppresses the growth of collateral arteries and/or other arteries from preexisting arteriolar connections through the inhibition of the

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b7GY b7GZ b7HA b7HB b7HC b7HD b7HE b7HF b7HG b7HH b7HI b7HJ b7HK b7HL b7HM b7HN b7HO b7HP b7HQ b7HR b7HS b7HT b7HU b7HV b7HW b7HX b7HY b7HZ b7IA b7IB b7IC b7ID b7IE b7IF b7IG b7IH b7II b7IJ b7IK b7IL b7IM b7IN b7IO b7IP b7IQ b7IR b7IS b7IT b7IU b7IV b7IW b7IX b7IY b7IZ b7JA b7JB b7JC b7JD b7JE b7JF b7JG b7JH b7JI b7JJ b7JK b7JL b7JM b7JN b7JO b7JP b7JQ b7JR b7JS b7JT b7JU b7JV b7JW b7JX b7JY b7JZ b7KA b7KB b7KC b7KD b7KE b7KF b7KG b7KH b7KI b7KJ b7KK b7KL b7KM b7KN b7KO b7KP b7KQ b7KR b7KS b7KT b7KU b7KV b7KW b7KX b7KY b7KZ b7LA b7LB b7LC b7LD b7LE b7LF b7LG b7LH b7LI b7LJ b7LK b7LL b7LM b7LN b7LO b7LP b7LQ b7LR b7LS b7LT b7LU b7LV b7LW b7LX b7LY b7LZ b7MA b7MB b7MC b7MD b7ME b7MF b7MG b7MH b7MI b7MJ b7MK b7ML b7MN b7MO b7MP b7MQ b7MR b7MS b7MT b7MU b7MV b7MW b7MX b7MY b7MZ b7NA b7NB b7NC b7ND b7NE b7NF b7NG b7NH b7NI b7NJ b7NK b7NL b7NM b7NO b7NP b7NQ b7NR b7NS b7NT b7NU b7NV b7NW b7NX b7NY b7NZ b7OA b7OB b7OC b7OD b7OE b7OF b7OG b7OH b7OI b7OJ b7OK b7OL b7OM b7ON b7OO b7OP b7OQ b7OR 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b7LU b7LV b7LW b7LX b7LY b7LZ b7MA b7MB b7MC b7MD b7ME b7MF b7MG b7MH b7MI b7MJ b7MK b7ML b7MN b7MO b7MP b7MQ b7MR b7MS b7MT b7MU b7MV b7MW b7MX b7MY b7MZ b7NA b7NB b7NC b7ND b7NE b7NF b7NG b7NH b7NI b7NJ b7NK b7NL b7NM b7NO b7NP b7NQ b7NR b7NS b7NT b7NU b7NV b7NW b7NX b7NY b7NZ b7OA b7OB b7OC b7OD b7OE b7OF b7OG b7OH b7OI b7OJ b7OK b7OL b7OM b7ON b7OO b7OP b7OQ b7OR b7OS b7OT b7OU b7OV b7OW b7OX b7OY b7OZ b7PA b7PB b7PC b7PD b7PE b7PF b7PG b7PH b7PI b7PJ b7PK b7PL b7PM b7PN b7PO b7PP b7PQ b7PR b7PS b7PT b7PU b7PV b7PW b7PX b7PY b7PZ b7QA b7QB b7QC b7QD b7QE b7QF b7QG b7QH b7QI b7QJ b7QK b7QL b7QM b7QN b7QO b7QP b7QQ b7QR b7QS b7QT b7QU b7QV b7QW b7QX b7QY b7QZ b7RA b7RB b7RC b7RD b7RE b7RF b7RG b7RH b7RI b7RJ b7RK b7RL b7RM b7RN b7RO b7RP b7RQ b7RR b7RS b7RT b7RU b7RV b7RW b7RX b7RY b7RZ b7SA b7SB b7SC b7SD b7SE b7SF b7SG b7SH b7SI b7SJ b7SK b7SL b7SM b7SN b7SO b7SP b7SQ b7SR b7SS b7ST b7SU b7SV b7SW b7SX b7SY b7SZ b7TA b7TB b7TC b7TD b7TE b7TF b7TG b7TH b7TI b7TJ b7TK b7TL b7TM b7TN b7TO b7TP b7TQ b7TR b7TS b7TT b7TU b7TV b7TW b7TX b7TY b7TZ b7UA b7UB b7UC b7UD b7UE b7UF b7UG b7UH b7UI b7UJ b7UK b7UL b7UM b7UN b7UO b7UP b7UQ b7UR b7US b7UT b7UU b7UV b7UW b7UX b7UY b7UZ b7VA b7VB b7VC b7VD b7VE b7VF b7VG b7VH b7VI b7VJ b7VK b7VL b7VM b7VN b7VO b7VP b7VQ b7VR b7VS b7VT b7VU b7VV b7VW b7VX b7VY b7VZ b7WA b7WB b7WC b7WD b7WE b7WF b7WG b7WH b7WI b7WJ b7WK b7WL b7WM b7WN b7WO b7WP b7WQ b7WR b7WS b7WT b7WU b7WV b7WW b7WX b7WY b7WZ b7XA b7XB b7XC b7XD b7XE b7XF b7XG b7XH b7XI b7XJ b7XK b7XL b7XM b7XN b7XO b7XP b7XQ b7XR b7XS b7XT b7XU b7XV b7XW b7XX b7XY b7XZ b7YA b7YB b7YC b7YD b7YE b7YF b7YG b7YH b7YI b7YJ b7YK b7YL b7YM b7YN b7YO b7YP b7YQ b7YR b7YS b7YT b7YU b7YV b7YW b7YX b7YY b7YZ b7ZA b7ZB b7ZC b7ZD b7ZE b7ZF b7ZG b7ZH b7ZI b7ZJ b7ZK b7ZL b7ZM b7ZN b7ZO b7ZP b7ZQ b7ZR b7ZS b7ZT b7ZU b7ZV b7ZW b7ZX b7ZY b7ZZ

biological activity of TGF β 1 as defined in any one of claims 1 to 12 for the preparation of a pharmaceutical composition for the treatment of tumors.

15. The method of claim 13 or the use of claim 14, wherein the agent inhibits the biological activity of TGF β 1 and/or inhibits an intracellular signal or signal cascade comprising SMAD proteins triggered in macrophages through the receptor for TGF β 1.
16. The method or the use of claim 15, wherein the agent blocks an interaction of the TGF β 1 and its receptor.
17. The method of any one of claims 13, 15 or 16 or the use of any one of claims 14 to 16, wherein the agent is derived from a class of substances as defined in claim 9.
18. The method or the use of claim 17, wherein the agent is designed to be expressed in vascular cells or cells surrounding preexisting arteriolar connections to a tumor.
19. The method of any one of claims 13 or 15 to 18 or the use of any one of claims 14 to 18, wherein the tumor is a vascular tumor.
20. The method or the use claim 19, wherein the tumor is selected from the group consisting of Colon Carcinoma, Sarcoma, Carcinoma in the breast, Carcinoma in the head/neck, Mesothelioma, Glioblastoma, Lymphoma and Meningeoma.
21. The use of any one of claims 2, 3, 5, 6, 8 to 11, 14 to 20, wherein the pharmaceutical composition is designed to be administered by intracoronary, intramuscular, intraarterial, intravenous, intraperitoneal or subcutaneous routes.